

20 Watt

2 x 1 Inch Package B  
4:1 Input Range  
Railway System



- o High Efficiency up to 90%
- o 4:1 Input Range
- o Regulated Outputs
- o Remote ON/OFF
- o Continuous Short Circuit Protection
- o 2 x 1 x 0.4 Inch Size Meet Industrial Standard
- o CE Mark meets 2004/108/EC
- o Safety Meets UL60950-1 Basic Insulation
- o Low No Load Input Power



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT MAX.	INPUT CURRENT		%EFF	CAPACITOR LOAD MAX.
				NO LOAD	FULL LOAD		
20BRS110R5LC-PO	43-160 VDC	5 VDC	4000 mA	3 mA	205.4 mA	88.5	5600 µF
20BRS110R12LC-PO		12 VDC	1670 mA		202 mA	90	1000 µF
20BRS110R15LC-PO		15 VDC	1330 mA		203.1 mA	89.5	
20BRD110R12LC-PO		±12 VDC	±833 mA		204.3 mA	89	680 µF
20BRD110R15LC-PO		±15 VDC	±667 mA		205.4 mA	88.5	350 µF

NOTE:  
Nominal Input Voltage 110 VDC.

**SPECIFICATIONS**

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

**INPUT SPECIFICATIONS**

Input Voltage Range	110 V	43-160V
Input Surge Voltage (100 ms max.)		200 VDC max.
Under Voltage Lockout	Vin power up Vin power down	40 V 38 V
Positive Logic Remote ON/OFF <sup>1)</sup>	Logic Compatibility Module ON Module OFF	Open Collector Ref. to -Input >3.5 VDC to 75 VDC or Open Circuit <1.2 VDC
Input Filter		Pi Type

**OUTPUT SPECIFICATIONS**

Voltage Accuracy		±1.5% max.
Voltage Balance (Dual Output)		±1.0% max.
Transient Response	25% Step Load Change	<250 µ sec.
External Trim Adj. Range	Single Output Models only	±10%
Ripple and Noise at 20 MHz BW <sup>2)</sup>	5 V	40 mV RMS max. 75 mV p-p max.
	12 V, 15 V, ±12 V, ±15 V	40 mV RMS max. 100 mV p-p max.
Temperature Coefficient		±0.03%/°C
Short Circuit Protection		Continuous
Line Regulation <sup>3)</sup>		±0.2% max.
Load Regulation <sup>4)</sup>	Single	±0.5% max.
	Dual	±1.0% max.
Cross Regulation (Dual Output)	Load cross variation 10%/100%	±5.0% max.
Over Voltage Protection		Zener or TVS Clamp
Current Limit		110% ~ 160% Nominal Output
Start up Time	Single	15 ms
	Dual	25 ms

**NOTE:**

- Add Suffix "R" to the Model Number with Negative Logic Remote ON/OFF.  
Module ON...<1.2 VDC  
Module OFF...>3.5 VDC to 75 VDC or Open Circuit
- Output Ripple and Noise measured with 1 µF ceramic Capacitor across Output.
- Measured from High Line to Low Line.
- Measured from Full Load to Zero Load.

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<b>GENERAL SPECIFICATION</b>		
Efficiency		see table
Isolation Voltage	Input / Output	2250 VDC min.
Isolation Resistance		10 GOhms min.
Isolation Capacitance		1000 pF
Switching Frequency		250 kHz
Operating Ambient Temperature Range		-40°C to +85°C
Derating, above 73°C		Linearly to Zero Power at +105°C
Case Temperature		+105°C max.
Storage Temperature Range		-55°C to +125°C
Cooling		Natural Convection
Humidity		95% RH max. Non-Condensing
MTBF (MIL-HDBK-217F) GB, 25°C, Full Load		TBD hrs
EMI/RFI		Conductive EMI Meets EN55022 Class A
Safety		meets UL60950-1 2nd (Basic insulation)
EMC <sup>5)</sup>		meets EN50155 (EN50121-3-2) with external filter
Schock/Vibration		meets EN50155 (EN61373)
Dimensions		2.00 x 1.00 x 0.40 Inches (50.8 x 25.4 x 10.2 mm)
Case Material		Black Coated Copper with Non-Conductive Base
Weight		35 g

## NOTE:

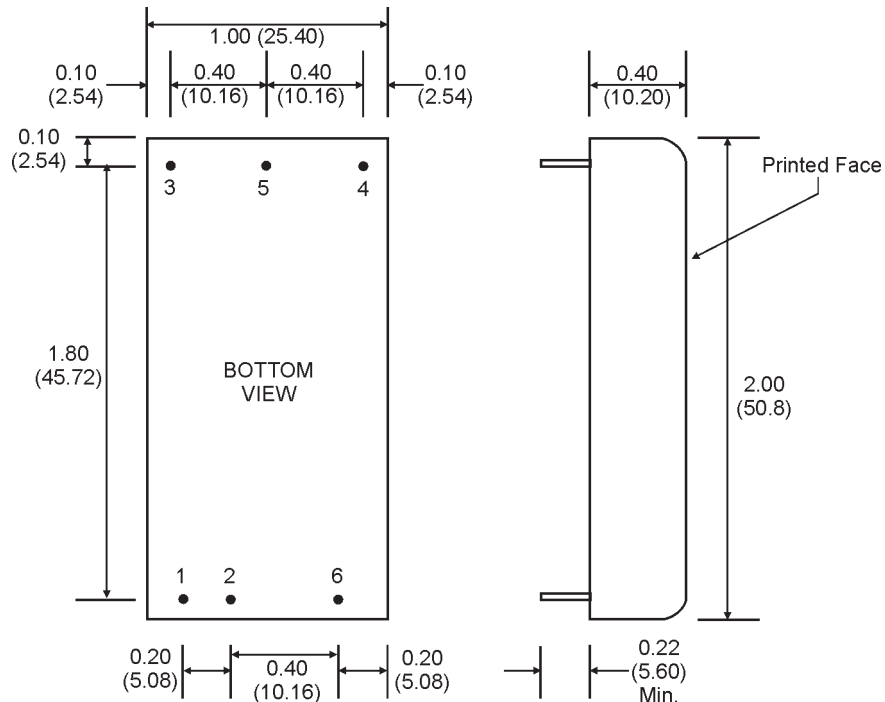
5. Design to meet EN50155 and RIA12 refer to Application Note.

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**MECHANICAL SPECIFICATIONS**

Case „B“

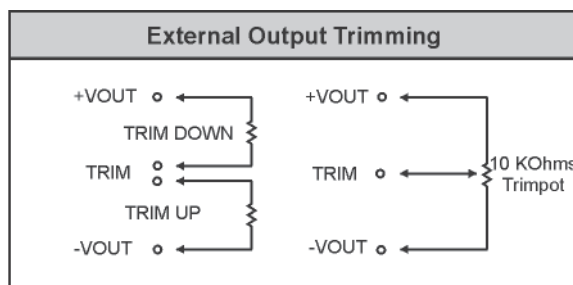
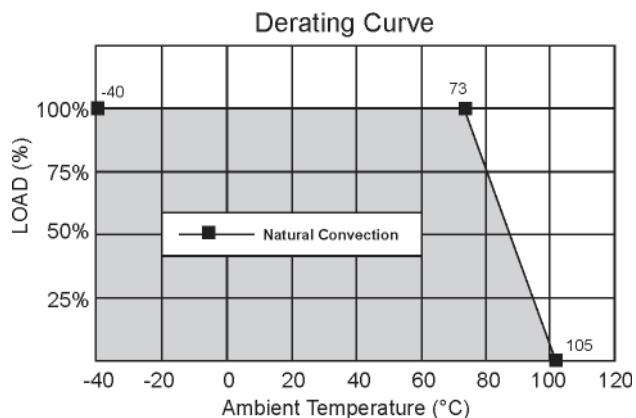


PIN CONNECTIONS		
	Single	Dual
1	+INPUT	+INPUT
2	-INPUT	-INPUT
3	+OUTPUT	+OUTPUT
4	TRIM	-OUTPUT
5	-OUTPUT	COMMON
6	REMOTE ON/OFF	REMOTE ON/OFF

All Dimensions in Inches (mm).  
 Tolerances x.xx = ±0.02, x.xxx = ±0.010 (Inches)  
 x.x = ±0.5, x.xx = ±0.25 (mm)

Pin Size is Ø 0.04 Inches (Ø 1 mm) DIA

**DIAGRAMS**



**NOTICE:**  
 The information in this document has been carefully checked. However, no responsibility is assumed for inaccuracies!  
 Specifications can be changed without notice. The latest and most complete information can be found on our website.